ASSESS THE NUTRITIONAL STATUS AND KNOWLEDGE ON IT AMONG ADOLESCENT GIRLS IN GOVERNMENT GIRLS HIGHER SECONDARY SCHOOL AT NEDUMANGAD IN TRIVANDRUM DISTRICT KERALA

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ABSTRACT

Good nutrition is a pillar of development because food is the most basic form of human need. Moreover, to achieve optimal physical growth and development, adolescents require adequate nutrition as well as physical activity to support muscle development and bone health. Without proper nutrition, health is impossible. The study was done to determine the nutritional status and the prevalent knowledge on it among adolescent girls of GHSS at Nedumangad in Thiruvananthapuram. The objectives of the study were to assess the nutritional status, assess the level of knowledge regarding nutrition, to compare the nutritional status and knowledge level regarding nutrition, to determine the association between the nutritional status among adolescent girls and their selected demographic variables and also to determine the association between knowledge level regarding nutrition and the girls' selected demographic variables. The study was conducted among 50 samples of adolescent girls who were selected using simple random sampling techniques. Conceptual framework was based on model of J W Kenny. A structured questionnaire was used to assess the knowledge. Results showed that 52% had inadequate knowledge, 46% had adequate knowledge and 2% had moderately adequate knowledge regarding the aspect of nutrition and with respect to nutritional status 58% of adolescent girls had normal nutritional status, 40% had inadequate nutritional status and 2% had obesity. Study findings further revealed that there was a significant association of level of knowledge of adolescent girls with environmental status and a significant association between level of nutritional status and socioeconomic status. Students need more education on nutrition to improve their knowledge and health status and more education regarding balanced diet was needed to be imparted to build a healthy community of citizens.

***Key Words**: Adolescent girls, Nutritional status, Nutrition knowledge, Food habits*

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INTRODUCTION

Adolescent girls are a very important section of society as they are the potential mothers and homemakers of future. Moreover they perform various other roles in the family and the community. It is a transitional period of dramatic physical growth and development. The period is marked by rapid and sequential physical and mental changes that transform a small girl child into an adult girl.

The physical changes include increase in height, weight and deposition of fat. The physical changes that occur require increased need of nutrients like vitamins, proteins and carbohydrates. In epidemic areas the incidence of Iodine deficiency is high resulting in malnutrition. An undernourished girl has the risk for developing complications during pregnancy due to which chances of her giving birth to a low birth weight baby increases, thus perpetuating a cycle of malnutrition and ill health.

A rapid growth phase during adolescence needs special nutritional requirements because 20% growth happens in stature and 50 % growth happens in adult's bone mass; hence, is the need for an increased provision of nutrients like calcium. Additional 15 % iron is required by an adolescent girl during her menstrual periods to compensate the loss of blood. Anaemia among the adolescent girls has been a major health hazard. They get stunted because of anaemia and lack of protein energy.

Dietary knowledge and access to resources are critical to improve health and nutrition in a sustainable way. Adolescence is the time to learn and adopt healthy habits to avoid many health and nutritional problems later in life. Adolescents have easier access to health and nutrition information through schools, recreational activities and mass media than what they get later in life. Particularly, knowledge about nutrition and health and healthy habits of female adolescents will have critical roles to play in maintaining future health and nutrition.

NEED FOR THE STUDY

Malnutrition is a global problem especially in developing countries and even among under privileged communities of the developed countries. This is particularly true of the developing countries where the population growth is not controlled and the resources are poor. Millions of Indian adolescents are equally deprived of their rights to survival, health, nutrition, education and safe drinking water. It is reported that 63% of them go to bed hungry and 53% suffer from chronic malnutrition. According to FAO reports, there are about 460 million people, that is 15% of the world population, malnourished of which about 300 million live in South Asia.

Indian adolescents aged 15- 19 years comprise 11% of total population. Adolescent females accounts for 22% of the female population. The massive health education programmes were urgently needed both in urban and rural areas in India because the awareness and knowledge regarding malnutrition is grossly inadequate among adolescents in India. Adolescence period may be the time to mount primary and secondary prevention programmes against malnutrition because at this very age individuals become more independent in their food choices.

As in March 2001, adolescents accounted for 22.8% of the population of India. There are around 239 million adolescents in India in the age group of 10- 19 years presently. Over the next two decades the number of adolescents is likely to increase further but their share to population will decrease marginally; as per the projections worldwide, nearly 43 million are disabled and in India a total of 21,906,769 are disabled and among them, 7,91,685 are males and 8,50,812 females who are physically challenged.

Worldwide estimates of the number of adolescents and young adults who live with a kind of disability vary widely. The process of estimating the number of disabled young people is complex for two reasons. First is that very frequently, disabled young people are grouped together with children or adults, impeding attempts to estimate their precise numbers as a distinct group. The second impediment is that definitions of disability vary widely. In some nations only individuals with significant challenges are identified and in others even those with mild disabilities are included in the data.

According to WHO reports of October 2012, world's adolescent population faces a series of serious nutritional challenges. Increased nutritional needs at this stage relate to the fact that adolescents gain up to 50% of their adult weight, more than 20% of their adult height, and 50% skeletal mass during this period. Calorie and Protein requirements are maximal.

OBJECTIVE OF STUDY

The objectives of this study are as follows —

1. To assess the level of nutritional status among adolescent girls
2. To assess the level of knowledge regarding nutrition among adolescent girls.
3. To compare the level of nutritional status and knowledge level regarding nutrition among adolescent girls.
4. To determine the association between level of nutritional status among adolescent girls and their selected demographic variables.
5. To determine the association between knowledge levels regarding nutrition among adolescent girls and their selected demographic variables.

HYPOTHESIS

H1: There is a significant relationship between the level of nutritional status and knowledge regarding nutrition among adolescent girls.

OPERATIONAL DEFINITIONS

- **Assess**: In this study, to assess means to check the nutritional status of adolescent girls.
- **Nutritional Status**: It refers to the level of nutritional status of adolescent girls and it is calculated by using body mass index (BMI) of the adolescents.
- **Knowledge:** It refers to adolescent girls' level of awareness regarding nutritional aspects as measured by structured knowledge questionnaires and interpreted in terms of levels marked as adequate, moderately adequate and inadequate.
- **Adolescent girls:** It includes the adolescent girls in the age group 13- 17 years studying in Nedmangad girls Higher Secondary School.

ASSUMPTIONS

- The adolescent girls may have inadequate nutritional status.
- The adolescent girls may have little knowledge regarding nutrition.

CONCEPTUAL FRAMEWORK

Conceptual framework for the present study is based on the Model of J W Kenny. According to Kenny, all living systems are open; they are in continuous exchange of matter, energy and information which results in varying degree of interaction with the environment from which the system receives input and gives back output in the form of matter, energy and information.

Input: In this study the input includes various socio-demographic variables of the adolescent girls like the age, religion, area where they are living, type of family, hygienic practices, educational status of the fathers and mothers of the adolescent girls, monthly income of the family, ordinal position of the child and previous source of information of adolescent girls regarding the nutritional status

Throughput: In this study the throughput includes the assessment of nutritional status of adolescent girls by calculating the Body mass Index (BMI) which has been arrived at by assessing the height and weight of the adolescent girls.

It also includes the assessment of knowledge of adolescent girls regarding nutrition status by providing a set of questions.

Output: In this study the output includes the adolescent's knowledge on nutritional status by finding out the result from the provided questionnaire and the adolescent girls are classified based on their levels of knowledge marked as adequate knowledge, moderately adequate knowledge and inadequate knowledge.

It also includes adolescent girls' nutritional status based on the calculated Body mass Index (BMI) which is classified as under-nutrition, normal nutrition and over-nutrition.

METHODOLOGY

Research Approach: Present study is designed to assess the Nutritional status and knowledge about it among adolescent girls studying in higher secondary school. Hence, the researcher chose quantitative approach for the study.

Research Design: Researcher uses descriptive research design.

Setting of the study: The study was conducted in Government Girls Higher Secondary School, Nedumangad.

Population: Adolescent girls studying in Government Girls Higher Secondary School, Nedumangad.

Sample: Sample consists of 50 adolescent girls in the age group of 13-17 years of Government Girls Higher Secondary School, Nedumangadu

Sampling Technique: Sampling technique used for the study was Simple Random Sampling.

Sample size: The sample size chosen was 50.

Sample selection criteria —

a) **Inclusion Criteria**
  - Adolescents who were willing to participate in this study.
  - Adolescents who were in the age group of 13-17 years.
  - Adolescents available during the time of data collection.
  - Adolescents who were able to read and write Malayalam.

b) **Exclusion criteria**
  - Those who were physically and psychologically unfit at the time of data collection.
  - Those who were above 18 years of age.

Tools/ Instruments: The following tools were selected to collect the data —

Structured questionnaire: Structured questionnaire consisted of 3 sections:

- **Section - 1:** Socio-demographic variables.
- **Section - 2:** Anthropometric measurements
- **Section - 3:** Twenty-five questions to assess the knowledge of adolescent girls regarding their nutrition.

Section - 1: Socio-demographic variables: This section comprised eleven questions for assessing the socio-demographic variables. It included age in years, religion, area, family environmental status, class, income, ordinal position, socio-economic status (SES) and source of information.

Section - 2: Anthropometric measurements: This section comprised of two questions to assess the nutritional status of adolescent girls such as height (ht), weight (wt) in-order to calculate body mass index (BMI).

The Anthropometric measurements: Height of the respondents was measured while the subject was standing without footwear, to the nearest 0.1 cm, using a portable Anthropometry rod. Weight was measured with the subject standing and wearing light clothes using a portable electronic weighing machine. The formula for Body Mass Index (BMI) prescribed by WHO, weight (kg)/ height (m^2) was used to calculate Body Mass Index (BMI) and international cut-off for BMI was used for classification of subjects as malnourished/ malnutrition (BMI below 18.0 kg/ m^2), normal 18 – 25 kg/ m^2), over weight (25 <BMI 30kg/ m^2).

Section - 3: Knowledge Assessment Questionnaire: This section consisted of 25 questions from areas like general aspects of nutrition, food sources, cooking methods, recommended daily allowances, nutritional problems and their prevention. Each question has only one correct response and the score was valued *One*. Total possible score for this section was 2. Zero was allotted for every wrong answer. Knowledge was regarded as adequate, moderately adequate and inadequate.

Scoring and Interpretation:

Knowledge grades —

0-50% – Inadequate knowledge
51-75% – Moderately adequate knowledge
76-100% – Adequate knowledge

Pilot Study: In order to find out the feasibility and the practicability of the study a pilot study was conducted with five adolescent girls who were selected by simple random sampling technique. The data collected was amenable to statistical analysis and thus the study was found to be feasible. After pilot study, few modifications were made in the sample size. Final study was carried out after solving problems identified in the pilot study.

Data Collection Procedure: The study was conducted after getting permission from the Principal of Government Girls Higher Secondary School. Data was collected from 50 adolescent girls after obtaining their written consent. The data collection and assessment instrument consisted of a questionnaire to collect Socio-demographic variables data and data for assessments of nutritional status and levels of knowledge regarding nutrition among adolescent girls. A learning module on Nutrition and Balanced Diet was given after data collection.

FINDINGS OF THE STUDY

Section – 1: Sample Characteristics of Adolescents

Table – 1: Frequency and percentage distribution of samples according to selected demographic variables

Sl. No.	Demographic Variables	Categories	Percentage
1.	Age (in years)	<13	20
		14-16	62
		>17	18
2.	Religion	Hindu	46
		Christian	18
		Muslim	36
3.	Area	Rural	76
		Urban	24
4.	Type of family	Nuclear Family	84
		Joint Family	16
		Extended Family	0
		Single Parent	0
5.	Environmental Status	Hygienic	98
		Unhygienic	2
6.	Mothers Education	Illiterate	2
		Primary	12
		High School	48
		Higher Secondary	34
		Degree/ Diploma	4
7.	Father Education	Illiterate	0
		Primary	18
		High School	54
		Higher Secondary	18
		Degree/ Diploma	10
8	Monthly Income	<500	12
		749	15
		999	25
		1000	14
		>2000	28
9	Socio-economic status	Upper	0
		Middle	84
		lower	16
10	Previous source of information	Doctor	20
		Family members	6
		Friends	60
		Mass Media	8
		No previous information	6
11	Ordinal position	1st Child	38
		2nd Child	56
		3rd Child	6

In the above table 62% were in the age group of 14-16 years, 46% were Hindus, 76% were residing in rural areas, 84% hailed from nuclear families, 48% of mothers and 54% of fathers had high school education, 28% had monthly income >2000, 84% belonged to middle class families, 60% received information regarding aspects of nutrition from friends and 56% of adolescent girls were at second ordinal position

Section – 2: Assessment of Nutritional Status

Table – 2: Distribution of sample subjects according to Nutritional Status

Body mass index	Percentage
Under-nutrition	40%
Normal	58%
Grade I obesity	0%
Grade II obesity	2%

The above table showed that 58% had normal BMI and 40% had under-nutrition.

Section – 3: Assessment of Levels of Knowledge

Table – 2: Distribution of sample subjects according to Level of Knowledge regarding Nutrition

Level of Knowledge	Percentage
Inadequate	52%
Moderately adequate	8%
Adequate	46%

The above table shows the distribution of sample subjects according to levels of knowledge regarding Nutrition. 52% of the adolescent girls had adequate knowledge regarding aspects of nutrition.

Section – 4: Comparison of the Levels of Nutritional Status and the Levels of Knowledge regarding the Aspects of Nutrition among Adolescent Girls

Table – 4: Mean, standard deviation and 't' value of levels of the nutritional status and levels of knowledge regarding aspects of nutrition among adolescent girls

Parameters	Mean	SD	Mean difference	T-value*	P- value
Knowledge	1.56	0.47	0.08	0.89	0.04**
Nutritional status	1.64	0.43			

** Significant at 0.05 level, * paired 't' test

It was evident from the table data that the samples had improved their knowledge according to their nutritional status. There was a statistically significant difference between level of knowledge and nutritional status among adolescent girls (t=0.89 and p<0.05)

DISCUSSION

Findings of the study are discussed based on the objectives and hypothesis framed.

With regard to socio- demographic variables of adolescents, 62% of the adolescent girls were in the age group of 14-16 years. 46% were Hindus, 76% were residing in rural areas, 86% were from nuclear families, 98% were following hygienic practices, 48% had high school education, 84% belonged to middle class families, 56% were at second ordinal position and 60% of adolescent girls received information regarding aspects of nutrition from friends.

- The first objective was to assess the level of nutritional status among adolescent girls. In this study 58% of adolescent girls had normal BMI and 40% had malnutrition
- The second objective was to assess the level of knowledge regarding nutrition among adolescent girls. Majority (52%) of adolescent girls had inadequate knowledge regarding aspects of nutrition, 46% had adequate knowledge and 2% had moderately adequate knowledge.
- The third objective was to compare the level of nutritional status and knowledge level regarding nutrition among adolescent girls and the corresponding hypothesis was that there is a significant relationship between the level of nutritional status and knowledge regarding nutrition among adolescent girls. It was evident that the samples had improved levels of knowledge according to their nutritional status. Thus the hypothesis that there is a significant relationship between level of nutritional status and knowledge regarding nutrition is accepted (t=0.89 and p <0.05).

- The fourth objective was to determine the association between levels of nutritional status among adolescent girls and their selected demographic variables.
  In this study, there was a significant association between level of nutritional status of adolescent girls and their socio-economic status. It was congruent with the study done by Shejoj Joshi's study of nutritional status of adolescent girls in rural areas of Bhopal district and they found a significant association between socio-economic status (SES) and nutritional status of adolescent girls.
- The fifth objective was to determine the association between knowledge levels regarding nutrition among adolescent girls and their selected demographic variables.
  In this study there was a significant association found between levels of knowledge and environmental status. Thus the above mentioned findings clearly showed that that the samples had improved level of knowledge in accordance with their nutritional status.

NURSING IMPLICATIONS

The findings of the study have implications for nursing service, nursing education, nursing administration and nursing research.

a) **Nursing Education**
   1. Seminar, Symposium, Role play or Workshop regarding the impact of childhood obesity can be conducted for school children.
   2. The topic regarding childhood obesity can be included in the curriculum with more explanation and information to the school children.

b) **Nursing Practice**
   1. Nursing practice in the health care setting should be equipped with up-to date knowledge regarding malnutrition so that they would be able to impart knowledge to patients.
   2. The nurse educator needs to prepare some posters related to childhood obesity which can be placed in the wards and educational departments.

c) N**ursing Administration**
   1. The nurse administrator should encourage the students and members to actively participate in conducting health programme which is cost-effective and convenient to school children.
   2. Providing funds for conducting seminars, workshops and conferences.
   3. Administrators have to integrate this in their structured teaching programme for their school children.
   4. The findings of study can be utilised as a basis of structured teaching programme for school children.

d) **Nursing Research**
   1. Motivate the investigator to conduct the study regarding childhood obesity with flash cards.
   2. Abstract of the research can be published in nursing journals so that further research on related topics is possible.
   3. Findings of the study will provide base line information that can be used for further studies in this area.
   4. Findings of the study urge the need for extensive research in this area.

CONCLUSION

Access of nutrition related knowledge was poor for adolescent girls as there was no provision for nutritional knowledge in the curriculum. The majority of them were not aware about their nutritional needs. Ignorance about micronutrients and protective foods prevailed among adolescent girls. The eating practices raised serious concerns about inadequate intake of proteins, green leafy vegetables and fruits, emphasising the need for a practical, relevant and tailor-made nutrition education programme, specially focusing on the nutrients and their benefits to the body, the consequences of skipping meals, the way they prepare their food. Also the study revealed an urgent need to educate not only the students but their families as well. Due to the importance of nutrition and its impact on health the study suggests that nutrition courses should be part of the university curriculums.

ACKNOWLEDGEMENT

The investigator humbly prostrate at the holy feet of God Almighty for His abundant blessings showered on her for the successful completion of this work.

The investigator expresses their extensive sense of gratitude towards Prof Suja K, Principal, CSI College of Nursing, Karakonam, for her continuous guidance and valuable advice throughout this study.

The investigator is much obliged to Ms. Sherly S.R., HOD in OBG for her immense support, knowledgeable suggestions, valuable help and guidance for the study.

The investigator is thankful to librarian Mrs. Aswathy, of Central library who helped in the successful completion of the study.

The Investigator is extremely thankful to Dr. Rabindranath, Physician for the incessant support and suggestions given throughout the study.

The investigator owes sincere gratitude and indebtedness to all students who willingly participated and co-operated with the study.

ABBREVIATIONS

BMI : ***Body Mass Index***

WHO : ***World Health Organization***

Kg : ***Kilogram***

Ht : ***Height***

Wt : ***Weight***

SES : ***Socio-economic Status***

Et al : ***And others***

REFERENCE

1. Mousa O. M. (2014). Awareness of Adolescent Girls about Basic Nutritional Needs during Pregnancy. *Assiut Scientific Nursing Journal*, *2*(4), 136-147.
2. Alavi M., Eftekhari M. B., Noot R., Rafinejad J., & Chinekesh A. (2013). Dietary Habits among Adolescent Girls and Their Association with Parental Educational Levels. *Global journal of health science*, *5*(5), 202.
3. WHO. Physical Status: The use and interpretation of anthropometry. Report of a WHO expert Committee .WHO Technical Report series 854 Geneva: world Health Organization. Pp 1238-1240
4. Swati Dixit, GG Agarwal, JV Singh, Surya Kant, Neelam Singh: A study on consciousness of adolescent girls about their body image : Indian Journal of Community Medicine; July 2011 pp 1302-1306.
5. Rawat R(2012) .Prevalence of malnutrition among school children with reference to overweight and obesity and its associated factors. Indian Journal of community health.; (24); 1050-1055
6. By JJ Binger. (2010). Parenting school Age Child:www.education.com/reference article/ parenting-school-children, 1020-1025.
7. Maliye C H, Deshmukh P (2010) Nutrient intake amongst rural adolescent girls of Wardha. Indian Journal Community Med:, 725-754.